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XII. *Magnetical Observations, made at* Cambridge. *By* STEPHEN SEWALL, *F. A. A.* Hancock *Professor of the Oriental Languages in the University.*

THESE observations were made at my house, with the accurate and elegant variation compass of *Nairne's* construction, belonging to the University, with which I was favoured by Professor *Williams*. The meridian-line, to which the instrument was applied, is presumed to be accurately true; no pains were spared to make it so.

Time.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.
1782.	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″				° ′ ″
April 15								6 53									
16									6 56								
17								6 52									
18		6 44						6 52	6 47				6 45				
19		6 36						6 52									
20	6 37							6 54					6 45				
21																	
22	6 39																
23	6 43						6 59										
24		6 48					6 58					6 48					
25																	
26		6 49	6 41	6 51			6 55		7 3		6 52		6 54				
27																	
28																	
29			6 38	6 45	6 45	6 57	6 57	7 00*		6 55							
30		6 46	6 46			6 59	6 47	6 56			6 54		6 50				6 48‡
Mean.	6 39 40	6 44 36	6 41 40	6 48 00	6 45 00	6 58 00	6 55 12	6 54 09	6 55 20	6 55 00	6 53 00	6 48 00	6 48 30				6 48 00

6° 49′ 35″ Mean of the observations.

* Needle vibrating. ‡ Needle vibrating to 43′. Aurora Borealis.

Time.

Time.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.
1782.	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
May 1				6 39		6 52			6 47	6 59		6 42					
2				6 40		6 43	6 48	6 51	6 54	6 49							
3	6 35		6 46			6 55	6 51			6 53							
4	6 41		6 41		6 54	6 50	6 58	7 08	6 54		6 53	6 46					
5																	
6	6 37		6 30		6 42		6 48										
7		6 50	6 39			6 55	6 55						6 37	6 48	6 58		
8	6 43	6 40	6 44					6 56								6 34	
9						6 56		6 53									
10	6 32					6 54	6 54		6 54				6 43			6 38‡	
11			6 39				6 50	6 50	6 55			6 52	6 40	6 48			
12									6 57				6 45	6 45		6 45	
13			6 40		6 51		6 56	6 52						6 42	6 42		
14	6 40	6 40	6 40	6 51	6 44	6 49	6 49	6 54	6 50	6 48	6 44	6 44		6 44	6 56	7 03	6 56
15		6 49	6 41	6 46	6 48	6 57	6 57	6 52	6 51			6 46	6 46	6 49		6 48	7 02
16		6 38	6 42	6 42		6 55	6 55	6 52			6 56		6 48	6 48		‖	
17		6 35	6 41				6 47	6 54				6 44	6 50			6 44	6 44
18	6 37	6 42	6 38			6 45	6 49	6 49						6 47	6 47	6 47	
19																	
20	6 30	6 37	6 33	6 36													
25		6 38	6 38	6 44		6 49	6 54	6 51	6 53		6 51			6 46		6 46	6 46
26							6 59	6 52				6 50	6 36			6 47	6 36
27	6 52*	6 44	6 42	6 54	6 56	6 49	6 51	6 55	6 47	6 51	6 51	6 47					
28			6 41	6 39												6 36	6 40§
29	6 42†	6 35	6 35	6 34		6 43	6 57	6 48		7 02	6 46	6 45					
30			6 35	6 39	6 43	6 47	6 53										
31													6 43				
Mean,	6 38 54	6 40 44	6 39 10	6 42 11	6 48 17	6 50 36	6 52 50	6 53 08	6 52 12	6 43 40	6 50 10	6 46 13	6 43 07	6 46 20	6 50 45	6 44 48	6 47 20

6° 46′ 30″ Mean of the observations.

* Needle vibrating. † Needle vibrating. ‡ Needle vibrating 10′. Small Aurora Borealis.
‖ Needle vibrating prevented an observation. § Small Aurora Borealis.

Time-

Time.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.
1782.	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
June 1	6 39		6 45	6 47	6 43	6 46	6 54	6 52		6 55	6 49	6 45	6 45		6 40		
3			6 38		6 48	6 47	6 50	6 50	6 50	6 50	6 46	6 43					6 53
4				6 37	6 46	6 48	6 50	6 50	6 53	6 50		6 45†	6 44	6 44			
5			6 36		6 45	6 47	6 45	7 02	6 59	7 02	6 38	6 59	6 51	6 51			6 49§
6				6 37	6 43		6 45	6 50		6 52			6 46				6 48§
7				6 36		6 52	6 49	6 53	6 55				6 56‡	6 42	6 46	6 40	
8		6 41	6 46			6 48	6 49	6 49	6 49			6 41	6 44	6 38		6 51	
10			6 40		6 47	6 45	6 48	6 47	6 50	6 48				6 42	6 48	6 48	6 43
11	6 38		6 36	6 40	6 44	6 46	6 49	6 54			6 49		6 45	6 47			6 47
12	6 38	6 38	6 38	6 38	6 45	6 45	6 49	6 52	6 52	6 51	6 47*						
13	6 38		6 38	6 39	6 47	6 46	6 51	6 56	6 56	6 53	6 54	6 50		6 52		6 44§	
14			6 37			6 48	6 51	6 50					6 43‡				
15			6 33	6 43		6 47	6 49	7 01				6 59		6 46			
17			6 41	6 38		6 47	6 53		6 50		6 40		6 43				
18	6 37		6 38	6 38	6 38	6 44	6 46		6 48								
19	6 37		6 37	6 41		6 47		6 51	6 49								
28										6 49	6 56	6 43					
29			6 36			6 55	6 49					6 38		6 46			
Mean.	6 37 50	6 39 30	6 38 30	6 39 27	6 44 36	6 47 22	6 49 11	6 52 38	6 51 55	6 52 13	6 47 22	6 46 00	6 46 20	6 45 20	6 44 40	6 45 45	6 [illegible] 20

6° 45′ 41″ Mean of all the observations.

* Thunder-storm, † Thunder in the west. ‡ Needle vibrating, § Small Aurora Borealis.

Time.

Time.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.
July 1	° ′ ″	° ′ ″	6°28′* ″	6°35′ ″	6°41′ ″	° ′ ″	6°49′ ″	6°51′ ″	6°51′	6°51′ ′	6°51 ″	6°51′ ″	6°51′ ″	6°44′ ″	° ′ ″	° ′ ″	° ′ ″
2			6 35	6 21	6 58†	6 40	6 49	6 54			6 46	6 50					
3	6 39	6 39	6 39	6 39	6 39	6 44	6 51	6 51	6 51	6 51	6 51	6 40					
4			6 32	6 48	6 41	6 47	6 48	6 48						6 40			
5			6 31			6 56	6 54						6 41	6 47			
6			6 36	6 36		6 55	6 47	6 47	6 56	6 52	6 41	6 41	6 41	6 41			
8			6 47	6 35													
10		6 28	6 37	6 42		6 48	6 55†	6 57†	6 44							6 34	
11	6 41	6 41	6 42	6 44	6 53	6 49	6 50	6 47	6 54								6 32
12			6 44	6 37	6 48	6 48	6 55	6 58	6 54	6 51				6 41		6 52†	6 52†
13			6 35	6 43	6 38	6 51	6 54	6 53	6 53	6 49							
15			6 34	6 47	6 41	6 47	6 50	6 54	6 48	6 49	6 43	6 41					
16		6 37	6 45	6 41	6 47	6 52	6 51	7 00	6 52	6 51	6 46	6 48	6 51	6 49			
17			6 38	6 44	6 49												
18					6 57	6 54	6 57	6 53	6 56				6 52			6 49	
19			6 38	6 41	6 43		6 51	7 00					6 53	6 50		6 50	6 47§
20						6 46	6 58										
22			6 39	6 42	6 53	6 50	6 50	6 56	6 53	6 51		6 48	6 56	6 56		6 47	
23			6 41	6 44	6 45	6 48	6 50	6 49	6 49	6 47		6 40	6 45			6 45	
24			6 29		6 45	6 52*	6 47*	6 58*	6 52		6 47	6 44		6 38	6 51	6 32	7 03‡
25			6 43	6 31	6 43	6 47	6 51	6 53	6 51		6 49	6 41	6 41	6 41	6 41	6 41	6 41
26				6 35	6 43	6 48	6 48	6 53	6 53	6 53		6 40	6 38	6 38		6 49	
27			6 34	6 38	6 41	6 49	6 54	6 54	6 52	6 46	6 42	6 44	6 44	6 44	6 44		
29			6 32	6 37	6 37	6 54	6 50	6 50	6 50					6 47		6 44	
30		6 33	6 38	6 42	6 45	6 45	6 48	6 48	6 48	6 51	6 45	6 45	6 45				
31			6 33	6 38	6 57	6 58	6 50	6 55	6 48	6 49			6 39	6 39			
Mean.	6 40 00	6 35 36	6 36 57	6 39 05	6 115 54	6 49 27	6 51 07	6 53 08	6 51 19	6 50 05	6 46 06	6 44 05	6 45 55	6 43 56	6 45 20	6 44 18	6 47 00

6° 45′ 15″ Mean of all the observations.

* Thunder-storm. † Needle vibrating. § Vibrating to 7° 03′. Aurora Borealis. ‡ $10\frac{3}{4}$h. 6° 34′.

Time.

Time.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.
1782.	° ′ ″		° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	
Aug. 1			6 39	6 39	6 39	6 41	6 44	6 48	6 46	6 48	6 42				6 48	6 40	
2			6 34	6 42	6 42	6 49	6 47	6 51	6 51	6 50	6 45	6 41					
3			6 41	6 41	6 47	6 47	6 49	6 49	6 51	6 51		6 47	6 44		6 40		
5			6 31	6 39	6 39	6 43	6 50	6 52	6 48	6 52	6 47						
6			6 37		6 45	6 50	6 53	7 01	6 49	6 47	6 46			6 46			
7	6 41		6 38	6 37		6 51	6 58	6 55	6 41		6 49	6 46		6 41			
8			6 36	6 42	6 42	6 46	6 55		6 54	6 48	6 52	6 47					
9			6 28*	6 47*	6 45*	6 55	6 50		6 53	6 51				6 45			
10			6 32	6 36	6 42	6 45	6 48		6 51		6 45		6 43				
12			6 35		6 40	6 42	6 47		6 53	6 48				6 38			
13			6 35		6 47	6 47	6 52	6 52	6 54	6 50	6 46					6 40	
14			6 31	6 41	6 41	6 52	6 45	6 52			6 49		6 49	6 49	6 49	6 49	
15			6 34		6 47												
17			6 37		6 44	6 47		6 46									
19			6 31	6 40	6 36	6 47	6 51	6 55	6 51	6 47	6 41	6 43	6 43				
20			6 38	6 38	6 46		6 54	6 48	6 53	6 43	6 43	6 43	6 43	6 43	6 43	6 35	
Mean,	6 41 00		6 35 26	6 40 11	6 42 48	6 47 17	6 50 09	6 51 44	6 50 23	6 48 38	6 45 55	6 44 30	6 44 24	6 43 40	6 45 00	6 41 00	

6° 44′ 48″ Mean of all the observations.

The mean of all the observations, from May to August, makes the variation 6° 46′ 22″ W.

* Needle vibrating.